

WHAT IS CLAIMED IS:

1. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications, comprising:

a handle body having a distal end, a proximal end and a substantially cylindrical housing extending along a longitudinal axis between said distal and proximal ends, said cylindrical housing defining a chamber therein and having at least one slot extending along said longitudinal axis accessing said chamber, said chamber open at said distal end of said handle body;

a knife holder at said distal end of said handle body having a post extending from said distal end of said handle body along said longitudinal axis;

a movable guard engaged with a guard positioning mechanism for longitudinal movement between a fully extended position and a fully retracted position with respect to said handle body, said guard having a proximal end, and an enlarged distal end for at least partially enclosing a knife blade attachable to said knife holder, and a guard body extending along a longitudinal axis between said distal and proximal ends of said guard; and

said guard positioning mechanism slidably mounted in said chamber and having a user control mechanism extending from within said chamber via said slot.

2. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 1, wherein:

said knife holder is partially disposed within said chamber opening at said distal end of said handle body to define a substantially semicircular opening about said knife holder and accessing said chamber.

3. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 2, wherein:

said moveable guard comprises a semicircular guard body slidably extendable from said semicircular opening about said holder.

4. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 1, wherein:

said guard comprises an enlarged partially semicircular distal end and tapering to a semicircular guard body.

5. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 1, wherein:

said guard is partially disposed in said chamber for longitudinal movement with respect to said handle body.

6. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 1, wherein:

said distal end of said handle body includes a semicircular relief for receiving said enlarged distal end of said guard when said guard is in said fully retracted position, said semicircular relief allowing access to said enlarged distal end of said guard.

7. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 6, wherein:

said access to said enlarged distal end of said guard provides user orientation and orientation control of said device.

8. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 1, wherein:

said guard comprises a circular distal end slidably extendable from said chamber opening at said distal end of said handle body.

9. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 8, wherein:

said handle body includes a reduced outside diameter extending rearward from said distal end of said handle body for receiving said circular distal end of said guard when said guard is in said fully retracted position.

10. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 9, wherein:

said circular distal end of said guard provides user orientation and orientation control of said device in said fully retracted position.

11. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 1, wherein said guard positioning mechanism further includes a position locking mechanism, the locking mechanism comprising:

a leaf spring positioned within said guard positioning mechanism to engage a first detent at said fully extended position and to engage a second detent at said fully retracted position; and

said chamber including said first and second detents to engage said leaf spring as said guard positioning mechanism is slidably moved within said chamber between said fully extended position and said fully retracted position with respect to said handle body.

12. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 11, wherein:

said engagement between said leaf spring and said first and second detent provides at least one of a tactile feedback and an audible feedback to a user.

13. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 1, wherein said guard positioning mechanism further includes a position locking mechanism, the locking mechanism comprising:

an integral cantilever beam and inclined projection to engage a first detent at said fully extended position and to engage a second detent at said fully retracted position; and

said chamber including said first and second detents to engage said integral cantilever beam and inclined projection as said guard positioning mechanism is slidably moved within said chamber between said fully extended position and said fully retracted position with respect to said handle body.

14. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 13, wherein:

said engagement between said integral cantilever beam and inclined projection, and said first and second detent, provides at least one of a tactile feedback and an audible feedback to a user.

15. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 1, wherein said guard positioning mechanism further includes a pushback prevention mechanism, the pushback prevention mechanism comprising:

at least one flange of a plurality extending from said proximal end of said guard and having a raised inner lip about an inside circumference of said flange, said plurality creating an opening at said proximal end of said guard to engage a pin;

said pin extending from a distal end of said guard positioning mechanism and having a groove about an outside circumference of said pin and having a taper, wherein said engagement between said guard and said guard positioning mechanism disposes said raised inner lip within said groove; and

at least one flange of said plurality having a raised surface to engage said taper, said engagement deflecting said at least one flange outward from said axis of said pin and into a third detent in said chamber, said engagement between said at least one flange and said third detent restricting said slidable movement of said guard relative to said handle body.

16. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 1, wherein said guard positioning mechanism further includes a pushback prevention mechanism, the prevention mechanism comprising:

at least one rail disposed along a longitudinal axis of said chamber, said rail having a first and second slot; and

said guard positioning mechanism having at least one clip disposed in said rail, said clip engaging said first slot at said fully extended position and engaging said second slot at said fully retracted position restricting said slidable movement of said guard relative to said handle body.

17. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 16, wherein:

said at least one clip is deflectable via said user control mechanism, said deflection releasing said engagement between said clip and said at least one rail.

18. A surgical knife safety handle device guard position locking mechanism, the locking mechanism comprising:

a handle body having a distal end, a proximal end and a substantially cylindrical housing extending along a longitudinal axis between said distal and proximal ends, said cylindrical housing defining a chamber therein and having at least one slot extending along said longitudinal axis accessing said chamber, said chamber open at said distal end of said handle body;

a guard positioning mechanism slidably mounted in said chamber for longitudinal movement between a fully extended position and a fully retracted position with respect to said handle body, and having a user control mechanism extending from within said chamber via said slot;

a leaf spring positioned within said guard positioning mechanism to engage a first detent at said fully extended position and to engage a second detent at said fully retracted position; and

said chamber including said first and second detents to engage said leaf spring as said guard positioning mechanism is slidably moved within said chamber between said fully extended position and said fully retracted position.

19. A surgical knife safety handle device guard position locking mechanism as claimed in claim 18, wherein:

said engagement between said leaf spring and said first and second detent provides at least one of a tactile feedback and an audible feedback to a user.

20. A surgical knife safety handle device guard pushback prevention mechanism, the pushback prevention mechanism comprising:

a handle body having a distal end, a proximal end and a substantially cylindrical housing extending along a longitudinal axis between said distal and proximal ends, said cylindrical housing defining a chamber therein;

a movable guard engaged with a guard positioning mechanism for longitudinal movement between a fully extended position and a fully retracted position with respect to said handle body, said guard having a proximal end, and an enlarged distal end, said guard positioning mechanism slidably mounted in said chamber;

at least one flange of a plurality extending from said proximal end of said guard and having a raised inner lip about an inside circumference of said flange, said plurality creating an opening at said proximal end of said guard to engage a pin;

said pin extending from a distal end of said guard positioning mechanism and having a groove about an outside circumference of said pin and having a taper, wherein said engagement between said guard and said guard positioning mechanism disposes said raised inner lip within said groove; and

at least one flange of said plurality having a raised surface to engage said taper, said engagement deflecting said at least one flange outward from said axis of

said pin and into a third detent in said chamber, said engagement between said at least one flange and said third detent restricting said slidable movement of said guard relative to said handle body.

21. A surgical knife safety handle device guard pushback prevention mechanism, the prevention mechanism comprising:

a handle body having a distal end, a proximal end and a substantially cylindrical housing extending along a longitudinal axis between said distal and proximal ends, said cylindrical housing defining a chamber therein;

a movable guard engaged with a guard positioning mechanism for longitudinal movement between a fully extended position and a fully retracted position with respect to said handle body, said guard having a proximal end, and an enlarged distal end, said guard positioning mechanism slidably mounted in said chamber;

at least one rail disposed along a longitudinal axis of said chamber, said rail having a first and second slot; and

said guard positioning mechanism having at least one clip disposed in said rail, said clip engaging said first slot at said fully extended position and engaging said second slot at said fully retracted position restricting said slidable movement of said guard relative to said handle body.

22. A surgical knife safety handle device guard pushback prevention mechanism as claimed in claim 21, wherein:

said at least one clip is deflectable via said user control mechanism, said deflection releasing said engagement between said clip and said at least one rail.

23. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications, comprising:

a handle body having a distal end, a proximal end and a substantially cylindrical housing extending along a longitudinal axis between said distal and proximal ends, said cylindrical housing defining a chamber therein, said chamber

open at said distal end of said handle body and having a user actuator mechanism slidably extending from said proximal end;

a knife holder at said distal end of said handle body having a post extending from said distal end of said handle body along said longitudinal axis;

at least one movable guard engaged with a guard positioning mechanism for longitudinal movement between a fully extended position and a fully retracted position with respect to said handle body, said guard having a proximal end, and an enlarged distal end for at least partially enclosing a knife blade attachable to said knife holder, and a guard body extending along a longitudinal axis between said distal and proximal ends of said guard; and

said guard positioning mechanism slidably mounted in said chamber and controlled by said user actuator mechanism for said longitudinal movement.

24. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 23, wherein said user actuator mechanism further comprises:

a first engaged position having an audible response, said first engaged position securing said at least one movable guard into at least one of said fully extended position and said fully retracted position with respect to said handle body; and

a second engaged position having an audible response, said second engaged position securing said at least one movable guard into at least one of said fully extended position and said fully retracted position with respect to said handle body.

25. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 23, wherein said user actuator mechanism further comprises:

a first linear segment for controlling a first movable guard; and

a second linear segment for controlling a second moveable guard.

26. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 23, wherein said user actuator mechanism further comprises:

a first linear segment for controlling a first movement of said movable guard;
and

a second linear segment for controlling a second movement of said moveable guard.

27. A surgical knife safety handle device for both ophthalmic and non-ophthalmic applications as claimed in claim 23, wherein said guard includes at least one of a triangular, square and box shaped enlarged distal end.